Delinquency and Crime

CURRENT THEORIES

Edited by
J. David Hawkins
University of Washington

CAMBRIDGE
UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

First published 1996

Library of Congress Cataloging-in-Publication Data

Delinquency and crime : current theories / edited by J. David Hawkins.
p. cm. – (Cambridge criminology series)
ISBN 0-521-47322-5. – ISBN 0-521-47894-4 (pbk.)
1. Juvenile delinquency – Research. 2. Juvenile delinquency – Prevention. 3. Adolescent psychology. I. Hawkins, J. David. II. Series.
HV9069.D43 1996
364.3'6 – dc20 95-6529

A catalog record for this book is available from the British Library

ISBN 0-521-47322-5 Hardback
0-521-47894-4 Paperback

Transferred to digital printing 2002

Contents

CHAPTER ONE

Developmental Continuity, Change, and Pathways in Male Juvenile Problem Behaviors and Delinquency

ROLF LOEBER

ABSTRACT: There is a growing consensus that major dimensions of early child problem behaviors can be distinguished, and that problem behaviors develop in an orderly sequence over time. Also, there is now also an impressive body of longitudinal data on the continuity of problem behaviors over time. It is less well known, however, whether some problem behaviors may serve as catalysts, in that their presence leads to worsening behavior, while their absence facilitates improvement. It also remains to be seen which classification scheme of child problem behaviors has the highest predictive yield in forecasting long-term negative (and positive) outcomes. Least explored are "dynamic" classifications or pathways, in which youth are classified according to their history and sequence of problem behaviors as those behaviors unfold over time. Moreover, relatively little is known about the diversification of problem behavior over time, but it is more certain that diversification is inversely related to desistance.

This chapter reviews these issues and shows that relevance for intervention studies. It does not attempt to cover the multitude of risk factors that may influence children's development, such as family and peer variables (for which, see Loeber, 1990), but instead, concentrates on the development of child problem behaviors as they unfold over time during childhood and adolescence.

The author is much indebted to JoAnn Koral for her editorial comments. The work on this chapter was supported by grant no. 86-JN-CX-0009 and NIMH grant MH48890. The points of view or opinions in this essay are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice and the National Institute of Mental Health.

Dimensions of Problem Behaviors

To what extent can different dimensions of problem behavior be distinguished, and is there "coherence across different manifestations" of child problem behavior (Sroufe, 1979), or are most of these behaviors only marginally related to each other?

To address this question, Loeber and Schmaling (1985a) performed a meta-analysis of the factor analyses based on these ratings from 28 studies covering over 11,000 youngsters. Using a multidimensional scaling technique, they found that antisocial child behavior can be represented on one dimension with two poles. On one extreme, there are primarily confronta-

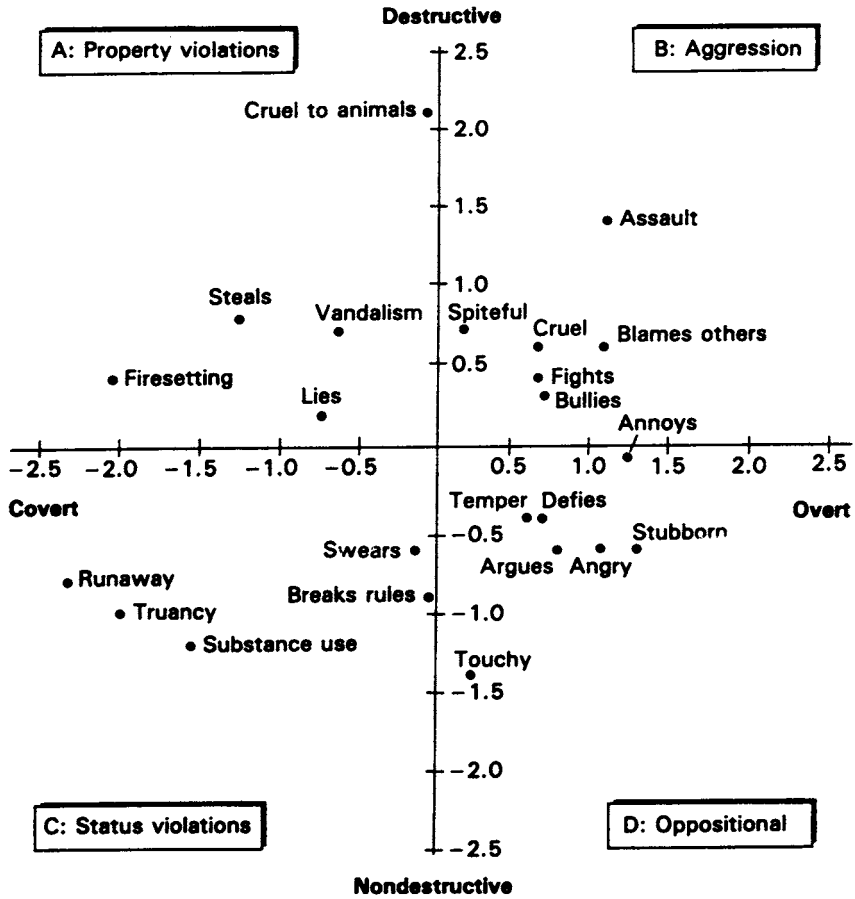

Figure 1.1. Results of meta-analysis of parent and teacher ratings of child problem behaviors using multidimensional scaling. (Frick et al., 1993)

tional or overt behaviors, while the other extreme mainly consists of nonaggressive, concealing, or covert behaviors. More recently, the meta-analysis has been repeated by Frick et al. (1993) on an expanded sample of factor analyses ($N = 60$) covering over 28,000 children. Their results replicated the overt–covert dimension of disruptive behaviors, but also showed a destructive–nondestructive dimension (Figure 1.1). The distance between the behaviors in Figure 1.1 represents the likelihood that behaviors loaded on the same factor. The farther the distance between behaviors in Figure 1.1, the less likely the behaviors are to be found loaded on one factor. Note that disobedient behaviors such as "defiance" and "breaks rules" are positioned close to the intersection of the two axes. This implies that these behaviors are shared by the covert–overt and the destructive–nondestructive dimensions. The results of the Frick et al. (1993) analyses were not substantially different for males and females.

In summary, analysis of the factor-analytic data indicates two dimensions of child problem behaviors, covert–overt and destructive–nondestructive, with disobedient behaviors being shared by the two dimensions. It should be noted that these results are based on parent and teacher ratings, and do not include youngsters' self-reports of delinquent acts, which often are concealed from adults. Moreover, the ratings usually did not include the more serious forms of delinquency found in self-reported delinquency measures or in measures of official offending. Also, the results of the meta-analysis were cross-sectional in nature and did not address developmental continuity of different problem behaviors over time.

Developmental Continuity

Three aspects of the developmental continuity of delinquency will be stressed here: different manifestations of the problems from childhood to adulthood, the persistence of problem behavior, and the impact of behavioral catalysts on the continuity or discontinuity of behavior problems.

Developmental Sequences in Problem Behavior. The basic premise here is that youngsters of different ages have different capabilities and behavioral repertoires for the expression of problematic behavior. Certain developmental changes in problem behavior are more obvious than others. Figure 1.2 shows a developmental ordering of problematic behaviors from early childhood to late adolescence, according to the earliest age at which particular behaviors manifest themselves (Loeber, 1990). The ordering of problem behaviors in Figure 1.2 is only a rough approximation of developmental priority, and may not equally apply to all children.

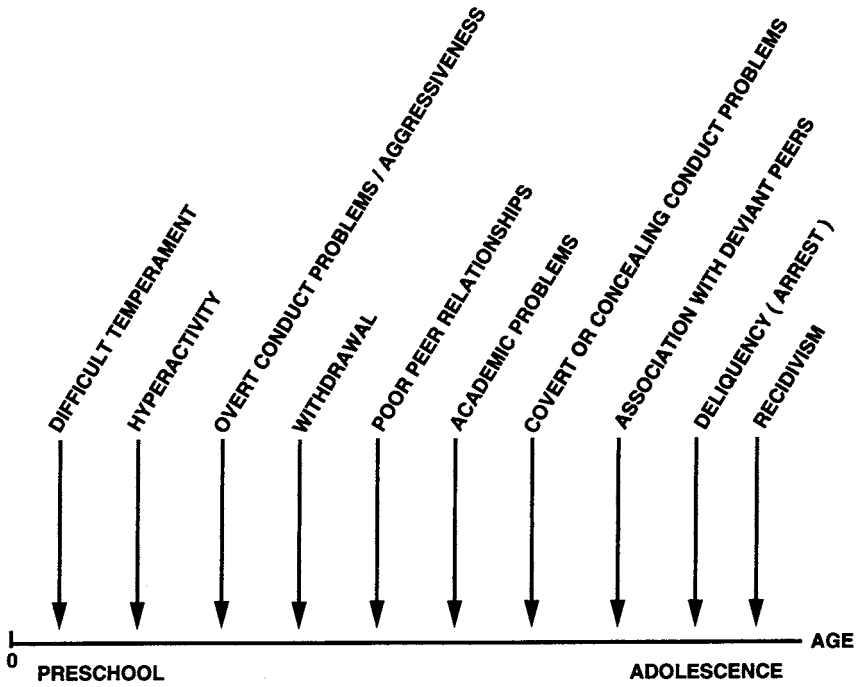

Figure 1.2. Approximate developmental ordering of problem behaviors from childhood to adult. (Loeber, 1990)

One manifestation of problem behaviors in the life cycle is difficult temperament. This refers to a child's style of responding to the environment, such as rhythmicity, adaptability, and quality of mood, rather than specific child behaviors (Thomas, Chess, & Birch, 1968).

Although temperament measures often include a measure of activity level as well, the syndrome of hyperactivity (with its associated problems of impulsivity and attention problems) is usually not measurable until the second or third year of life.

The ability to crawl or walk usually opens up many new avenues of mischief. Improved physical strength may become a weapon, initially in a minor way by enabling the child to physically attack siblings or adult caretakers. As soon as children learn to speak, verbal aggression may be added to their behavioral repertoire. Aggression may then be reinforced by children's cognitions, leading them to misattribution of hostile motives in others. Social withdrawal may also become apparent during the preschool years.

Once youngsters enter preschool or kindergarten, there is not only a

new setting in which problems may be exhibited, but the availability of peers may generate new problems or reinforce the aggressive problems that were already apparent with siblings. During the elementary school period, more concealing problem behaviors may emerge, such as truancy, theft, and association with deviant peers. At any point in elementary school, middle school, or high school, youngsters may begin to associate with deviant peers and/or begin to commit minor crimes. For a proportion of children this will be a passing phenomenon, but for others it will be a stepping-stone to the frequent commission of more serious delinquent acts. Children's contacts with police tend to accelerate in early adolescence, as does recidivist offending.

It can be argued that the preceding variety of problem behaviors are often temporary in nature, and that low stability over time may undermine the notion that there is coherence across different manifestations of the problem behaviors.

The Persistence of Early Problem Behaviors. Opinions have been divided about the degree to which certain problem behaviors are stable over time. Studies show that externalizing behaviors tend to have higher stability over time than internalizing behaviors (e.g., Rutter, 1982; Kohlberg, Ricks, & Snarey, 1984). Children's problems with peers during the preschool period, however, do not appear very stable, judging from the Richman, Stevenson, and Graham study (1982), but may improve during the elementary school age years. Juvenile aggression is one of the acting out behaviors that has a relatively high degree of stability over time. Olweus (1979), in his overview of longitudinal studies on aggression, concluded that the degree of longitudinal consistency in aggression is much greater than has generally been assumed. He stated that "Aggressive behavior at ages 12 and 13 may show a high or very high degree of stability for periods of 1 to 5 years (from 50% to more than 90% of the variance accounted for). Also for periods as long as 10 years, the stability is high (some 45% of the variance accounted for)" (p. 869). This is not to say that prediction coefficients for aggression are uniform across all ages. At age 8 these coefficients are comparatively small and increase with age. Longitudinal studies tend to show that serious juvenile aggression becomes more stable over time from early adolescence onward, independent of the length of the follow-up (Loeber, 1982). Around this period test–retest correlations are much higher than at earlier periods, indicating that fewer youngsters who are aggressive tend to subsequently grow out of these acts (in other words, most children will outgrow aggression prior to adolescence). This is in agree-

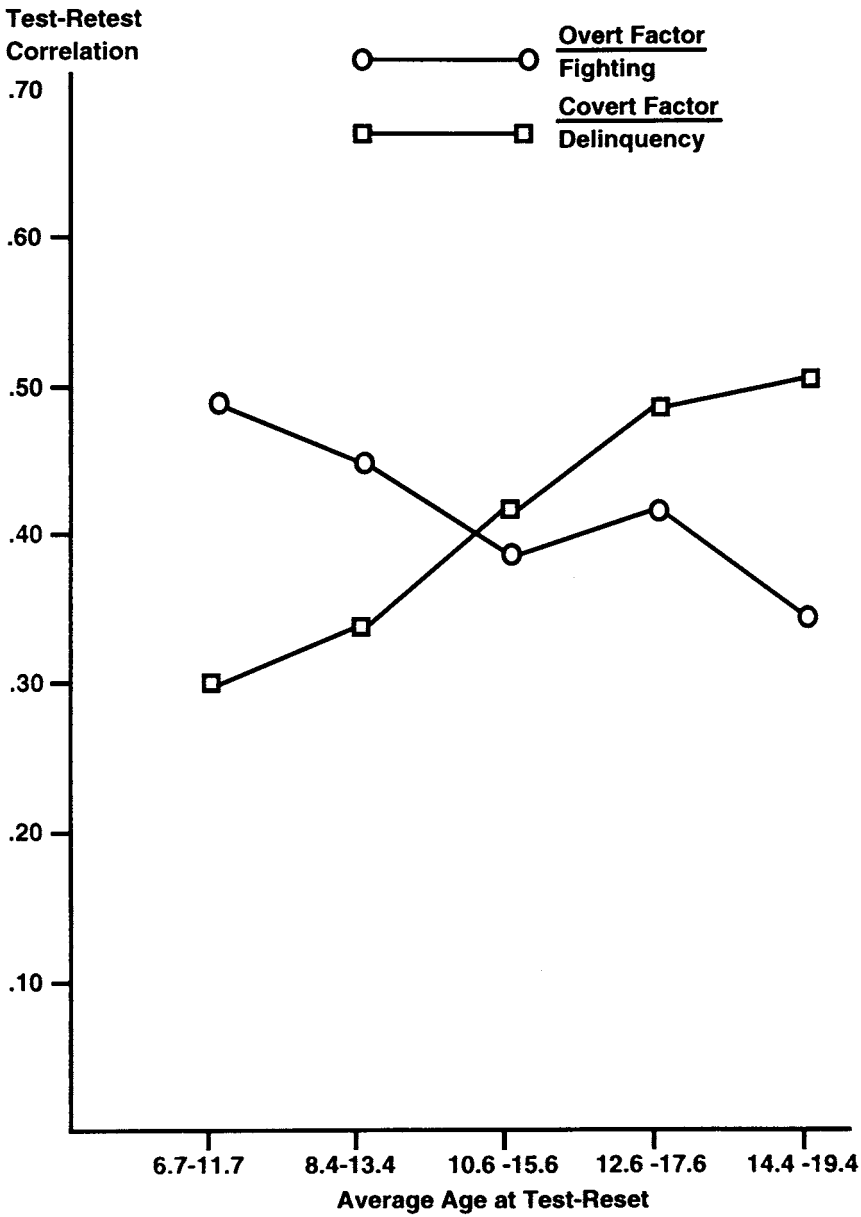

Figure 1.3. Stability coefficients for overt and covert problem behavior factors for different age cohorts over five years. (Based on Gersten et al., 1976)

ment with surveys on the prevalence of aggression during the adolescent years (Loeber, 1982; Moskowitz, Schwartzman, & Ledingham, 1985).

Whether children direct their aggression at adults and peers, there is considerable evidence of continuity for these specific forms of conflict. Studies of sibling conflict show that such conflict is often not only stable from the preschool years to elementary school age (e.g., Richman et al., 1982), but is evident throughout adolescence (Gersten, Langner, Eisenberg, Simcha-Fagan, & McCarthy, 1976; Olweus, 1979). For example, Gersten and her colleagues found an average correlation of 0.48 over a 5-year span. The same study demonstrated that youngsters' conflict with parents averaged about the same correlation. When broken down by different age cohorts, however, the correlations show a decline from the midadolescence onward, which may be attributed to youngsters leaving home. The 5-year test–retest correlations for youngsters' fighting similarly decrease with age, as is shown in Figure 1.3, particularly between age 6 and age 19.

In contrast, the test–retest correlations for delinquent acts in the same study tended to increase over time (Figure 1.3). This increase is almost linear from age 6 to age 19, and accounted for about three times as much variance in late adolescence as compared with late childhood.

Changes in continuity appear to be specific to certain behaviors. For example, hyperactivity is a common problem in preschoolers and is reasonably stable over time (Campbell, Schleifer, & Weiss, 1978; Chamberlin, 1977; Glow, Glow, & Rump, 1982; Richman et al., 1982). A cross-sectional study, however, shows that the prevalence of high activity level appears to be highest in the first 3 years of life, and then declines afterward (Routh, Schroeder, & O'Tuama, 1974). Calculation of desistance rates in the longitudinal study by Richman et al. (1982) shows that desistance is $3\frac{1}{2}$ times higher between ages 3 and 4 than between ages 4 and 8 (see also Campbell & Werry, 1986; La Greca & Quay, 1982).[1] Recently, Hart et al. (1993) reported longitudinal findings showing that particularly hyperactivity and impulsivity declined with age, but that attention problems had a higher stability over time.

In summary, stability coefficients differ in magnitude for different child problem behaviors and may vary with age, increasing for some problem behaviors and decreasing for other problem behaviors. Therefore, the maximum stability coefficient is not achieved at the same age period for all

[1] These figures should be interpreted with caution because they refer to change scores that, because of compounded reliability of the pre- and postmeasures, inherently are problematic.

problem behaviors. There is a lack of consensus as to the earliest age at which different behaviors become stable.

Catalysts for the Continuity of Problem Behaviors. Studies of continuities of child behavior often have examined particular categories of behavior problems (e.g., aggression, theft) in isolation rather than looking at whether the continuity of one behavior is influenced by the presence of another behavior. It is hypothesized here that certain behaviors function as *catalysts* in that other behaviors are only prone to persist when the catalyst is present; conversely, when the catalyst is absent, the problematic behavior tends to become less likely over time. Two examples will be given: hyperactivity and substance use.

Hyperactivity. It has long been recognized that hyperactivity (and associated impulsivity and attention problems) and disruptive behaviors often cooccur (Hinshaw, 1987). To what extent, however, is hyperactivity a catalyst for the development of disruptive behavior? And is hyperactivity directly associated with later serious outcomes, or is the relationship conditional on the emergence of early and less serious forms of disruptive behavior?

Several early studies suggested that conduct disorder is more severe and persistent when children also score high on an index of hyperactivity/attention problems (August & Stewart, 1983; Magnusson, 1988; Offord, Sullivan, Allen, & Abrams, 1979; Schachar, Rutter, & Smith, 1981). For example, Rutter and his associates in the Isle of Wight study (Schachar et al., 1981) found that when 10-year-old conduct-disordered boys and girls were followed up until the age of 14, 66.7% of those with pervasive hyperactivity (as rated by parents) tended to persist over time in conduct disorder compared with about 8.3% of those without hyperactivity at time 1.[2] Subsequent longitudinal studies have replicated this finding for different age groups of males, such as preschoolers who were followed up until the middle of elementary school (Carey & McDevitt, 1978; Richman, Stevenson, & Graham, 1985). Similarly, Gittelman, Mannuzza, Shenker, and Bonagura (1985), who followed up 6- to 12-year-old hyperactive boys until age 16, found that those who continued to be hyperactive were far more likely to show antisocial or substance use disorder than those whose attention deficit disorder abated. Thus, the continuity of several forms of problem behavior depended on the presence or persistence of symptoms of hyperactivity.

The question is, however, to what extent hyperactivity without conduct

[2] When teacher ratings were used, the figures were 33.3% and 7.7% respectively.

problems is sufficient to generate conduct problems. Evidence for this is contradictory. Only one study reported that attention-deficit hyperactivity disorder (ADHD) *alone* could serve as a precursor to antisocial personality disorder in adulthood (Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1993). In that same study, ADHD has also been postulated as a risk factor for later criminality, but only when mediated by conduct disorder (Mannuzza, Klein, Konig, & Giampino, 1989). Farrington, Loeber, and Van Kammen (1990) reported that hyperactivity and conduct problems at age 8–10 each predicted chronic offending (i.e., six or more convictions by age 24). Cadoret and Stewart (1991), in a cross-sectional study of antisocial personality disorder (APD) in adoptees, found that ADHD was not directly related to APD, "but indirectly through a set of aggressive behaviors" (p. 79). Thus, the evidence is contradictory that hyperactivity by itself is associated with later serious disruptive behavior.

Could it be that hyperactivity is associated with an early onset of disruptive behavior? Recently, Farrington et al. (1990) reported that hyperactivity predicted an early onset of convictions (ages 10–13) better than conduct problems. Similarly, Loeber, Green, Keenan, and Lahey (1994) found that *only* a diagnosis of ADHD predicted the *early* onset of conduct disorder (i.e., delinquency) in clinic-referred boys. If the age of onset was not taken into account, the best behavioral predictors of the onset of conduct disorder was a combination of oppositional defiant disorder *and* physical aggression.

In summary, most of the evidence indicates the catalytic role of hyperactivity in the development of serious disruptive behavior in childhood and adolescence. It should be understood that hyperactivity is often accompanied by impulsivity and attention problems, and that probably the impulsive element in hyperactivity is of most relevance for the associated onset of disruptive behaviors during childhood and adolescence. The following developmental sequence is plausible. Hyperactivity may stimulate an early onset of disobedience, conduct problems, and delinquency. The risk of serious conduct problems and delinquency may become more acute when physical aggression accompanies disobedience at an early age. Whether a decrease in hyperactivity is associated with a decrease in problem behavior is less certain.

Substance Use. Concurrent studies have shown that the more serious the substance use the higher the likelihood that individuals will engage in serious forms of delinquency (see Loeber, 1988 for a review). Concurrent studies, however, do not indicate the direction of effect, or whether a decrease in substance use is followed by a decrease in delinquent activities.

Studies on the direction of effect have shown that substance use may be associated with an increase in delinquency, but the reverse may also apply (Loeber, 1988). For example, longitudinal analyses reported by Van Kammen and Loeber (1994) on a sample of boys who were followed up from ages 13 to 16 showed that onset of drug use (marijuana use or hard drug use) and drug dealing in adolescent males was associated with a subsequent increase in person-related offenses and carrying of a concealed weapon. The increase was more pronounced for drug dealing than for drug use. In addition, drug dealing was associated with an increase in car- and fraud-related crimes. It can be argued, however, that delinquency may also activate substance use. This was confirmed by Van Kammen and Loeber (1994), who found that previous involvement in property offenses increased the subsequent risk of the onset of illegal drug use. Also, previous involvement in both property- and person-related offenses increased the risk of the onset of drug dealing.

If drug involvement and delinquency are intertwined, does this also mean that a decrease in drug use is followed by a decrease in delinquent activities? There is evidence for this in interview studies of narcotic addicts: When individuals began using hard drugs less frequently, their criminal involvement also decreased (Ball, Shaffer, & Nurco, 1983; Nurco, Shaffer, Ball, & Kinlock, 1985). This is not surprising in light of the decreased need to illegally obtain funds to purchase the drugs. Results from treatment studies demonstrate similar effects on delinquency (see, e.g., Savage & Simpson, 1981). Longitudinal analyses on juveniles (Van Kammen & Loeber, 1994) also showed that discontinuation of illegal drug use (or drug selling) was associated with a decrease in delinquent activities. The extent that a decrease in delinquency is associated with a subsequent decrease in drug involvement, however, is not clear from the available studies.

In summary, hyperactivity and drug involvement may act as catalysts in the development of disruptive behaviors, but the evidence is far from complete. Future studies need to demonstrate that catalysts operate *independently* from third factors, such as impulsivity, aggression, or peer influences.

Classification of Children's Problem Behaviors and the Prediction of Later Outcomes

Given the emergence of different problem behaviors during childhood and adolescence (Figure 1.2), it follows that children in different life stages may be classified differently on the basis of their prevailing problem behav-

ior. Each classification can be related to differential risk for later handicaps, of which delinquency can be one.

Starting with temperament, investigators have classified children as temperamentally "easy" or "difficult" (Thomas et al., 1968). Information on the long-term predictability of temperament on antisocial outcomes is sparse but supportive (e.g., Werner, 1987). Undoubtedly, highly aggressive children are already distinguishable from nonaggressive problem children during the preschool period (see, e.g., Fagot, 1984). Increasingly, studies have been able to demonstrate the importance of boys' aggression from as early as the preschool period as a predictor of later delinquency and conduct problems (Charlebois, Le Blanc, Gagnon, Larivée, & Tremblay, 1993; Loeber, Tremblay, Gagnon, & Charlebois, 1989; Spivack, 1983).

As mentioned, hyperactivity is another important factor in the development of disruptive behavior. It is less clear, however, to what extent this applies to hyperactivity during the preschool period, when the distinction between hyperactive and nonhyperactive children is more difficult to make (e.g., Campbell, Breaux, Ewing, & Szumowski, 1984; Matheny, 1983). The link between hyperactivity and later delinquency, however, now rests largely upon studies with elementary school age or older children as subjects (e.g., Magnusson, 1988).

Difficult peer relations may be used to classify children. For example, Dodge, Coie, and Brakke (1982) studied elementary school age children and, on the basis of their relationships with peers, classified them as popular, rejected, or controversial (i.e., seen as popular by some and rejected by others). This classification was differentially predictive of later problem behavior (Coie & Dodge, 1983; Kupersmidt & Coie, 1990). Other studies also have firmly established a strong link between children's problem behaviors as seen by their peers and later aggression and delinquency (Eron, Walder, & Lefkowitz, 1971; Huesmann, Eron, Lefkowitz, & Walder, 1984; Johnston & Pelham, 1986; Roff, 1986; Roff, Sells, & Golden, 1972; West & Farrington, 1977).

Turning to studies on juvenile problem behavior during the elementary school age period, youngsters have been classified by their teachers as aggressive, troublesome, or as having some other problematic behavior. Especially from age 8 onward, these behaviors have been connected to both self-reported delinquency and official records of arrest or conviction (Loeber & Stouthamer-Loeber, 1987; West & Farrington, 1977). Although concealing, nonaggressive disruptive behaviors such as truancy and theft may already be evident during the preschool period (Stouthamer-Loeber, 1991), it is not known at what ages these behaviors begin to predict later delinquency (Farrington, 1981; Mitchell & Rosa, 1981).

There has been a continuing debate in delinquency studies about whether juvenile delinquency is a homogeneous phenomenon or whether discrete subgroups of juvenile delinquents can be distinguished. On the one hand, there have been proponents of a "cafeteria style" of offending (Klein, 1984). On the other hand, there have been others who distinguish between various groups, such as property and violent offenders (Blumstein, Cohen, Roth, & Visher, 1986). In the areas of juvenile justice and psychiatric care, efforts to classify youngsters have focused on severely impaired populations – gang members, incarcerated juveniles, or juveniles in psychiatric institutions. Epidemiological surveys on samples that include less impaired youngsters similarly constitute a working ground for classification studies. Each can be expected to produce different results. Typically, the former type of study has provided evidence for multiproblem youngsters, whose offending appeared generalized rather than specialized or limited to particular types of offenses (Klein, 1971). The latter type of study, although finding low rates of generalists, found other more specialized groups, who often were not referred to the courts or the clinics.

Frick et al. (1993) innovatively classified clinic-referred boys using two dimensions of problem behavior (see Figure 1.1). Each subject's vector scores from the two-dimension graph were subjected to a *k*-means cluster analysis in order to identify homogeneous profiles of behavior. This resulted in three clusters: nondeviant boys; boys with an elevation on quadrant D (oppositional behavior) and quadrant B (aggression); and boys with an elevation on quadrant A (property violation), quadrant D (oppositional behavior), and quadrant B (aggression). One of the validity tests of the classification showed a substantial but imperfect overlap between the empirically derived clusters of deviant boys and conceptually derived classification of oppositional defiant disorder and conduct disorder according to *DSM-III-R* (American Psychiatric Association, 1980, 1987). The diagnosis of oppositional defiant disorder refers to nondelinquent disruptive behaviors, while the diagnosis of conduct disorder mostly refers to delinquent acts.

In summary, although various classification schemes have been used in this area of research, their differential utility is far from clear in predicting delinquency. In general, studies comparing the utility of different classification schemes on the *same* subjects are wanting. There is a lack of consensus, however, as to the earliest age at which different classification schemes can be reliably measured and reach optimal utility in predicting negative or positive long-term outcomes.

A Comparison between Different Classifications of Children at Risk for Delinquency

In order to explore the differential utility of different classification schemes, Loeber and Stouthamer-Loeber (1986) have executed several comparisons, using data initially collected with G. R. Patterson and his associates at the Oregon Social Learning Center. The sample studied consisted of over 200 boys. The sample was followed up over 5 years, and the boys were classified in two ways. A first classification, based on earlier work by Loeber and Dishion (1984), focused on the settings in which aggression occurred: (a) boys who fought at home only, (b) boys who fought at school only, (c) boys who fought at home and school, and (d) remaining nonfighting boys. A second classification, based on earlier work by Loeber and Schmaling (1985b), concentrated on both aggression and theft and distinguished among (a) boys who fought (as rated by the mother and the teacher) but were not involved in theft (exclusive fighters), (b) boys who stole but did not fight (exclusive stealers), (c) boys who stole and fought (versatiles), and (d) the remaining boys.

The question raised by Loeber and Stouthamer-Loeber (1986) was the utility of the aggression-setting classification and the aggression-theft classification in differentially predicting theft, aggression, or arrest rates 5 years later. Briefly, this was indeed the case; analyses of variance showed that the fighting-setting classification predicted later aggression, self-reported theft, and yearly arrest rate. Those who fought at home and school showed the highest scores in each outcome measure compared with those who fought only at home or only at school. Post hoc analyses revealed that youngsters' fighting at school accounted for most of the effect in later antisocial behavior; fighting at home only was distinctly less predictive of antisocial outcomes.

For the aggression-theft classification, the analyses of variance showed a significant effect for self-reported theft, delinquent lifestyle, and rate of arrest, but *not* for various indicators of aggression at time 2. Post hoc tests revealed that the versatile youngsters (those who fought and stole), compared with all others, were most delinquent. The magnitude of effects for the same categories of delinquent behavior were considerably higher in the fighting and theft classification than in the fighting-setting classification. This resulted in different predictive yields, with fighting-setting better explaining later aggression and violence, and fighting-stealing accounting more for later delinquency and theft.

In summary, different classification schemes may have different yields

and are likely to produce different interpretations about the relative importance of certain early child behaviors as predictors of specific outcomes. There is a need to expand these analyses to include other classification schemes and compare their predictive utility as well.

Classification schemes discussed so far, however, have been cross-sectional and static in nature. A more promising approach would be to examine a more dynamic classification of children on the basis of their *development* of problem behavior over time.

Dynamic Classification of Problem Behaviors: Developmental Pathways toward Serious Forms of Delinquency

In criminology, it has become common practice to classify youngsters on the basis of their first offense (e.g., Thomas, 1976). From a developmental perspective, it can be argued that classification on the basis of a single behavior is extremely limited, and does not necessarily reflect essential characteristics of the delinquent career. A developmental approach favors a classification based on the youngster's developmental history. Such a "dynamic classification" (Huizinga, 1979) has the advantage of being based on the mix of past problem behaviors rather than a single act, thus forming a better basis for the prediction of future delinquency or risk for psychopathology.

Although few studies have classified developmental histories or pathways (see, e.g., Frum, 1958), a review of longitudinal studies has provided evidence that there is more than one pathway to crime (Loeber, 1988). A pathway represents a group of individuals who experience behavioral development that is distinct from the behavioral development of other group(s) of individuals. A key feature of the concept of a pathway is that it takes into account individuals' history and temporal sequence of problem behavior on a continuum of increasing seriousness of problem behavior over time. Thus, the concept of a pathway allows individuals with varying degrees of deviance to be placed on one or more developmental trajectories.

Loeber et al. (1993) investigated pathways in the two oldest samples of the Pittsburgh Youth Study, who were studied between the ages of 10 and 16. The authors used retrospective data on onset (reported by the child and mother), combined with prospective data over six data waves. They found that the results best fitted three pathways (Figure 1.4): (1) the *overt pathway,* which represented an escalation from minor aggression (annoying others, bullying) to physical fighting, and eventually to violence (robbery,

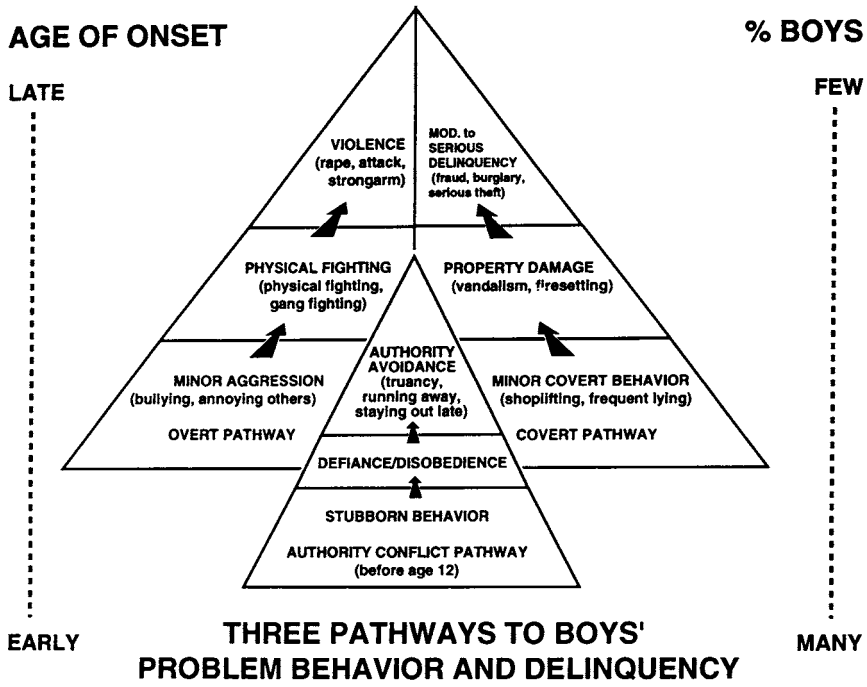

Figure 1.4. Three developmental pathways in problem behavior. (Based on Loeber et al., 1993)

rape, etc.); (2) the *covert pathway,* consisting first of minor covert acts (shoplifting and frequent lying), then property damage (fire setting, vandalism), and then more serious forms of theft (e.g., breaking and entering); and (3) the *authority conflict pathway,* which had as its first step stubborn behavior, followed by serious disobedience and defiance, and finally by authority avoidance before the age of 12 in the form of staying out late at night, truancy, or running away. A proportion of youth were classified as not fitting in more than one pathway, but a substantial group showed problem behavior characteristic of only a single pathway. Typically, the onset of authority conflict preceded the onset of overt or covert behavior (Loeber et al., 1993).

The three pathways were validated against the frequency of self-reported delinquency and the frequency of court petitions for delinquent acts. The rates of self-reported and official delinquency were the lowest for youth who were only in a single pathway. Youth simultaneously in two pathways, those in the overt and covert pathways and those in the covert and authority conflict pathways, had significantly higher rates of delinquency than